

AMENDMENT UNDER 37 CFR § 1.111  
Serial No. 10/801,711

**AMENDMENTS TO THE CLAIMS**

This listing of the claims replaces all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS**

1. [Currently Amended] A method of dynamically controlling a bias point of a photodiode of an optical receiver, the method comprising iteratively repeating steps of:  
  
detecting a performance parameter indicative of an eye opening of an optical signal received by the optical receiver;  
  
comparing a current value to a previous value of the performance parameter;  
  
calculating an adjustment step size and direction based on the comparison result;  
  
and  
  
~~adjusting a bias voltage of the photodiode based on the calculated adjustment step size and direction so as to optimize a value of the detected performance parameter;~~  
calculating an updated bias setting value based on a current value of the bias setting and the calculated adjustment step size and direction; and  
  
generating the bias voltage based on the updated bias setting value.
2. [Original] A method as claimed in claim 1, wherein the performance parameter comprises any one of:  
  
an eye opening ratio;  
  
an Optical signal to Noise ratio (OSNR);  
  
an eye quality (IQ); and  
  
a bit error rate.
3. [Cancelled]
4. [Currently Amended] A method as claimed in claim 13, wherein the step of calculating an adjustment step direction comprises a step of reversing the step

AMENDMENT UNDER 37 CFR § 1.111  
Serial No. 10/801,711

direction if the current value of the performance parameter is less than the previous value.

5. [Currently Amended] A method as claimed in claim 13, wherein the step of calculating an adjustment step size comprises a step of scaling the step size with a relative magnitude of the current value of the performance parameter.
6. [Previously Amended] A controller for dynamically optimizing a bias point of a photodiode of an optical receiver, the controller comprising:
  - detector means for detecting a performance parameter indicative of an eye opening of an optical signal received by the optical receiver; and
  - a processor for calculating a bias point that optimizes a value of the detected performance parameter, the processor operating under control of software code adapted to:
    - compare a current value of the performance parameter to a previous value;
    - calculate an adjustment step size and direction based on the comparison result; and
    - calculate the bias point based on the calculated adjustment step size and direction.
7. [Original] A controller as claimed in claim 6, wherein the performance parameter comprises any one of:
  - an eye opening ratio;
  - an Optical signal to Noise ratio (OSNR);
  - an eye quality (IQ); and
  - a bit error rate.
8. [Original] A controller as claimed in claim 7, wherein the detector means comprises a clock and data recovery (CDR) circuit of the receiver.

AMENDMENT UNDER 37 CFR § 1.111  
Serial No. 10/801,711

9. [Original] A controller as claimed in claim 7, wherein the detector means comprises a detector circuit associated with a clock and data recovery (CDR) circuit of the receiver.
10. [Previously Amended] A controller as claimed in claim 6, wherein the processor further operates under control of software code adapted to:  
calculate an updated bias setting value based on a current value of the bias setting and the calculated adjustment step size and direction
11. [Previously Amended] An optical receiver for receiving an optical communications signal, the receiver comprising:  
a photodiode for converting the optical communications signal into a corresponding electrical signal;  
detector means responsive to the electrical signal for detecting a performance parameter indicative of an eye opening of the optical signal;  
a processor for calculating a bias point of the photodiode that optimizes a value of the detected performance parameter, the processor operating under control of software code adapted to:  
compare a current value of the performance parameter to a previous value;  
calculate an adjustment step size and direction based on the comparison result; and  
calculate the bias point based on the calculated adjustment step size and direction.; and  
a bias generator for supplying a bias signal to the photodiode based on the calculated bias point.
12. [Original] A receiver as claimed in claim 11, wherein the performance parameter comprises any one of:  
an eye opening ratio;  
an Optical signal to Noise ratio (OSNR);

AMENDMENT UNDER 37 CFR § 1.111

Serial No. 10/801,711

an eye quality (IQ); and

a bit error rate.

13. [Original] A receiver as claimed in claim 12, wherein the detector means comprises a clock and data recovery (CDR) circuit of the receiver.
14. [Original] A receiver as claimed in claim 12, wherein the detector means comprises a detector circuit associated with a clock and data recovery (CDR) circuit of the receiver.
15. [Original] A receiver as claimed in claim 11, wherein the processor further operates under control of software code adapted to:  
calculate an updated bias setting value based on a current value of the bias setting  
and the calculated adjustment step size and direction.